

PATENT CLAIMS

1. Bearing arrangement for an adjusting device in a motor vehicle with

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- a bearing point in the form of a bearing opening of a base part and
- a bearing element engaging through the bearing opening,

10 **characterised in that**

the base part (S, T) has on the edge (10) of the bearing opening (1) at least one deformation area (11, 12, 13, 14, 14a, 14b, 14c,) which as a result of plastic deformation protrudes radially inwards from the edge (10) and acts as a radial support for the bearing element (2).

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2. Bearing arrangement according to claim 1, **characterised in that** the at least one deformation area (11, 12, 13, 14, 14a, 14b, 14c) has in comparison to the further 20 radially not inwardly displaced areas of the edge (10) of the bearing opening (1) a lesser rigidity in respect of radially acting forces.

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3. Bearing arrangement according to claim 1 or 2, **characterised in that** the deformation area (11, 12, 13, 14, 14a, 14b, 14c) is associated with at least one weakened area (16,16a, 16b; 17, 17a, 17b; 18, 18a, 18b; 19, 19a, 19b, 19c) of the component part (S, T) on the side of the deformation area (11, 12, 13, 14, 14a, 14b, 14c) remote from the bearing opening (1).

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4. Bearing arrangement according to one of the preceding claims, **characterised in that** the deformation area (D) is formed symmetrical relative to a central plane (M) of the bearing opening (1) and changes axially at its two ends into radially not inwardly protruding sections (N) on the edge (10) of the bearing opening (1).

5. Bearing arrangement according to one of the preceding claims, **characterised in that** several deformation areas (11, 12, 13, 14, 14a, 14b, 14c) are arranged in succession along the edge (10) along the bearing opening (1).

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6. Bearing arrangement according to claim 5, **characterised in that** the deformation areas (11, 12, 13, 14) are spread out round the entire perimeter of the bearing opening (1).

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7. Bearing arrangement according to claim 5, **characterised in that** the deformation areas (14a, 14b, 14c) are disposed only along a part of the perimeter of the bearing opening (1), more particularly along that part on which during operation of the bearing arrangement the comparatively lower radial forces act.

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8. Bearing arrangement according to one of claims 3 to 7, **characterised in that** each deformation area (11, 12, 13, 14, 14a, 14b, 14c) is associated with a weakened area (16, 16a, 16b; 17, 17a, 17b; 18, 18a, 18b; 19, 19a, 19b, 19c).

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9. Bearing arrangement according to claim 3 or one of claims 4 to 8 as well as in relation to claim 3, **characterised in that** the weakened area (16a, 16b; 17a, 17b; 18a, 18b; 19, 19a, 19b, 19c) comprises at least one recess of the component part (S, T).

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10. Bearing arrangement according to claim 9, **characterised in that** the recess (16a, 16b; 17a, 17b; 18a, 18b) is formed as a through opening.

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11. Bearing arrangement according to claim 9, **characterised in that** the recess (19; 19a, 19b, 19c) is formed through a recess, e.g. in the form of a blind-hole type material displacement area.

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12. Bearing arrangement according to claim 8 and 11, **characterised in that** the recesses (19a, 19b, 19c) have different depth in the axial direction of the bearing opening (1).

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13. Bearing arrangement according to one of claims 9 to 12, **characterised in that** the extension (t) of the deformation area (11, 12, 13, 14, 14a, 14b, 14c) in the axial direction of the bearing opening (1) corresponds with the depth and/or width of the recess (16a, 16; 17a, 17b; 18a, 18b; 19; 19a, 19b, 19c).

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14. Bearing arrangement according to one of claims 3 to 13, **characterised in that** the at least one weakened area (16, 16a, 16b; 17, 17a, 17b; 18, 18a, 18b; 19, 19a, 19b, 19c) extends along the edge (10) of the bearing opening (1).

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15. Bearing arrangement according to one of claims 3 to 14, **characterised in that** the deformation area (11, 12, 13) is associated with two partial areas (16a, 16b; 17a, 17b; 18a, 18b) of a weakened area (16, 16a, 16b; 17, 17a, 17b; 18, 18a, 18b; 19; 19a, 19b, 19c) separated from each other by a web (16, 17, 18).

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16. Bearing arrangement according to claim 15, **characterised in that** the deformation area (11, 12, 13) lies between the web (16, 17, 18) and the bearing opening (1).

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17. Bearing arrangement according to one of the preceding claims, **characterised in that** it serves to support an adjusting element (T, V) of an adjusting device for a motor vehicle seat, more particularly an adjusting lever, on a supporting seat part (S), more particularly a seat side part.

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18. Bearing arrangement according to one of the preceding claims, **characterised in that** the bearing element (2) is designed as a bearing bolt.

5 19. Bearing arrangement according to claim 18, **characterised in that** the bearing bolt (2) has a bearing section (20) e.g. in the form of a collar, as well as a connecting section (25) e.g. in the form of a threaded section.

10 20. Method for manufacturing a bearing arrangement according to one of the preceding claims,

characterised in that

15 the at least one deformation area (11, 12, 13, 14, 14a, 14b, 14c) is deformed so that it radially supports the bearing element (2).

21. Method according to claim 20, **characterised in that** the at least one deformation area (11, 12, 13) is deformed inwards after inserting the bearing element (2) into the bearing opening (1) so that it radially supports the bearing element (2).

22. Method according to claim 21, **characterised in that** the deformation area (11, 12, 13) is deformed radially inwards through the action of external forces – in relation to the bearing opening (1) -.

23. Method according to claim 22, **characterised in that** the deformation area (11, 12, 13) is deformed by means of a tool which creates radially inwardly acting forces, e.g. a prick punch.

24. Method according to one of claims 21 to 23, **characterised in that** the cross-sectional dimensions of the bearing opening (1) prior to deformation of the at least one deformation area (11, 12, 13) has an oversize in relation to the cross-sectional dimension of the bearing section (20) of the bearing element (2).

25. Method according to claim 20, **characterised in that** the deformation area (14, 14a, 14b, 14c) is deformed prior to the insertion of the bearing element (2) into the bearing opening (1) so that it protrudes radially inwards from the edge (10) of the bearing opening (1).

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26. Method according to claim 25, **characterised in that** the deformation area (14, 14a, 14b, 14c) is deformed again as the bearing element (2) is inserted into the bearing opening (1) so that it bears free of play against the bearing element (2).

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27. Method according to claim 25 or 26, **characterised in that** the outer cross-sectional dimension of the bearing section (20) of the bearing element (2) is selected large enough so that the bearing element (2) can only be inserted into the bearing opening (1) with a partial radial return of the deformation area (14, 14a, 14b, 14c) outwards.

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20 28. Method according to one of claims 25 to 27, **characterised in that** the deformation area (14, 14a, 14b, 14c) is deformed through the bearing element (2).

25 29. Method according to one of claims 20 to 28, **characterised in that** before producing the bearing opening (1) in the base part (T) at least one recess (K, L) is created along the subsequent edge (10) of the bearing opening (1).

30 30. Method according to claim 29, **characterised in that** after forming the bearing opening (1) in the base part (T) action is applied to the recess (K, L) by means of a tool (P1, P2) so that a deformation area (D) is produced on the edge (10) of the bearing opening (1).

35 31. Method according to claim 30, **characterised in that** the deformation area (D) is formed symmetrical relative to the central plane (M) of the bearing opening (1)

and changes in the axial direction at the ends into radially non-protruding sections (N) of the edge (10) of the bearing opening (1).

5 32. Method according to one of claims 20 to 31, **characterised in that** a bearing section (20) of the bearing element (2) is used to mount the bearing element (2) in the bearing opening (1).

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